

Nalco Docket No.: 7726-NES

Customer No. 000049459

**REMARKS**

This is in reply to the Office Action mailed on February 6, 2008 ("Office Action").

Claims 1, 4-7, 9-11, 16-25 and 29-32 are currently pending.

Claim 24 is objected to because "dipropylene glycol methyl ether" is repeated twice.

Claim 29 is rejected under 35 U.S.C. § 102(b) over U.S. Patent 4,396,499 ("McCoy").

Claims 1, 4-7, 9-11, 16-17, 19, 20, 29 and 31 are rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 ("Treybig") in view of U.S. Patent 5,977,286 ("Marten").

Claims 21, 22 and 25 are rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") in view of U.S. Published Patent Application No. 2003/0008781 ("Gupta").

Claims 29-31 are rejected under 35 U.S.C. 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") in view of U.S. Patent 4,417,048 ("Soula").

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") in view of U.S. Patent 5,779,405 ("Bruhnke").

Claim 18 is rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten").

Claim 32 is rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") or U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") in view of U.S. Patent 4,417,048 ("Soula").

Claims 23 and 24 are rejected under 35 U.S.C. § 103(a) over U.S. Patent 4,396,499 ("McCoy") in view of U.S. Patent 5,779,405 ("Bruhnke").

Claims 1, 4, 5, 6 and 7 are rejected on the ground of nonstatutory obviousness-type double patenting over claims 13, 2, 3 and 4 of U.S. Patent 6,569,983 ("Treybig") in view of U.S. Patent 5,977,286 ("Marten").

Claims 23-25 and 29-31 are cancelled without prejudice to reduce the matters at issue.

No new matter is added by this amendment.

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## **DISCUSSION**

### **The Objection to Claim 24**

Claim 24 is objected to because "dipropylene glycol methyl ether" is repeated twice.

Applicant has cancelled claim 24 rendering this objection moot.

### **The Rejection of Claim 29 under 35 U.S.C. § 102(b) over U.S. Patent 4,396,499**

Claim 29 is rejected under 35 U.S.C. § 102(b) over U.S. Patent 4,396,499 ("McCoy").

Applicant has cancelled claim 29 rendering this rejection moot.

### **The Rejection of Claims 1, 4-7, 9-11, 16-17, 19, 20, 29 and 31 under 35 U.S.C. § 103(a) over U.S.**

#### **Patent 6,569,983 in view of U.S. Patent 5,977,286**

Claims 1, 4-7, 9-11, 16-17, 19, 20, 29 and 31 are rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 ("Treybig") in view of U.S. Patent 5,977,286 ("Marten").

Applicant respectfully traverses this rejection.

Applicant respectfully asserts that claim 1 recites a method of modifying the permeability to water of a subterranean formation comprising injecting into the subterranean formation an aqueous composition comprising from about 0.005 percent to about 2 percent, by weight, of a water-soluble alkylene oxide branched polyhydroxyetheramine or a salt thereof, wherein the polyhydroxyetheramine is prepared by reacting a diepoxide with one or more alkylene oxide functionalized amines and one or more amines having two reactive hydrogen atoms wherein the diepoxide is selected from the group consisting of diglycidyl ethers of polyhydric phenols.

As discussed in Applicant's Amendment and Reply dated September 11, 2007, Applicant respectfully asserts that Treybig does not disclose using polyhydroxyetheramines which include diglycidyl ethers of polyhydric phenols.

Applicant respectfully asserts that Marten discloses epoxy resin compositions useful as coatings for bridging cracks, as adhesives and as constituents of paint. The resins are prepared by reacting an epoxide compound, which includes both aliphatic diglycidyl ethers and diglycidyl ethers of polyhydric phenols, with a variety of amines followed by reaction of the resulting epoxide-amine

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adduct with polyfunctional isocyanates. Abstract, col. 7, lines 34 to col. 8, line 19. Certain of the recited amines can overlap with the claimed amine having two reactive hydrogen atoms or the claimed alkylene oxide functionalized amines. Col. 9, line 1 to col. 10, line 15. Applicant respectfully asserts, however, that Marten does not disclose a polyhydroxyetheramine which is prepared from a diglycidyl ether of a polyhydric phenol, an amine having two reactive hydrogen atoms and an alkylene oxide functionalized amine or that such resins would have any utility for modifying the permeability to water of subterranean formations.

The Examiner relies on Marten to teach the equivalence of aliphatic diglycidyl ethers and diglycidyl ethers of polyhydric phenols. Applicant respectfully asserts, however, that any purported equivalence of aliphatic and aromatic diglycidyl ethers for purposes of preparing certain resins for use in coatings and adhesives is irrelevant with respect to the use of the claimed polyhydroxyetheramines in a method of modifying the permeability to water of subterranean formations. Accordingly, Applicant respectfully asserts that there is nothing in Treybig or Marten supportive of their combination and therefore respectfully requests withdrawal of the rejection of claims 1, 4-7, 9-11, 16-17, 19, 20, 29 and 31 under 35 U.S.C. § 103(a) over Treybig in view of Marten.

The Rejection of Claims 21, 22 and 25 under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 and U.S. Patent 5,977,286 in view of U.S. Published Patent Application No. 2003/0008781

Claims 21, 22 and 25 are rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") in view of U.S. Published Patent Application No. 2003/0008781 ("Gupta").

Applicant respectfully traverses this rejection.

As discussed in Applicant's Amendment and Reply dated September 11, 2007, Applicant respectfully asserts that polyhydroxyetheramines incorporating diglycidyl ethers of polyhydric phenols are not disclosed by Treybig. Therefore, Applicant respectfully disagrees with the Examiner's assertion that Treybig is not deficient. Applicant respectfully asserts that as Treybig discloses a different treating agent, the deficiency is clear.

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As discussed previously, Applicant respectfully asserts that Gupta discloses a surfactant composition which is unrelated to both the claimed polyhydroxyetheramines incorporating diglycidyl ethers of polyhydric phenols and the polyhydroxyetheramines derived from aliphatic diepoxides of Treybig.

Applicant further respectfully asserts that the disclosure of resins incorporating aliphatic diepoxides or diglycidyl ethers of polyhydric phenols for use in coatings and adhesives by Marten is irrelevant with regard to teaching the equivalence of aliphatic diepoxides and diglycidyl ethers of polyhydric phenols in the preparation of polyhydroxyetheramines for use in claimed method of modifying the permeability to water of subterranean formations as the end uses disclosed by Treybig and Marten are fundamentally different. Applicant respectfully asserts that nothing in either reference teaches or suggests that the polymers of one can be used in the method of the other.

Accordingly, Applicant respectfully asserts that there is nothing in Treybig, Marten and Gupta suggestive of their combination and therefore claim 1 nonobvious over the cited references.

Finally, Applicant again respectfully asserts that it is settled law that when a process is patentably novel and nonobvious, use of additional, conventional additives or process steps is likewise novel and nonobvious. See Amendment and Reply dated May 16, 2007 and cases cited therein. Thus, while it may be true that addition of stabilization salts according to Gupta will increase or maintain the permeability of clay in a subterranean formation as asserted by the Examiner, Applicant respectfully asserts that this is irrelevant to the patentability of a process involving the claimed polyhydroxyetheramine in combination with the salts.

Accordingly, as the water-soluble, branched polyhydroxyetheramine including diglycidyl ethers of polyhydric phenols of this invention is novel and nonobvious over the polymer of Treybig and nothing in Gupta, Marten or Treybig teaches or suggests the equivalence of the surfactants according to Gupta and either the claimed water-soluble, branched polyhydroxyetheramines including diglycidyl ethers of polyhydric phenols and the polyhydroxyetheramines incorporating aliphatic diepoxides of Treybig, Applicant respectfully requests withdrawal of the rejection of claims 21 and 22 under 35 U.S.C. § 103(a) over Treybig in view of Gupta and Marten.

Claim 25 is cancelled without prejudice rendering the rejection of this claim moot.

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The Rejection of Claims 29-31 under 35 U.S.C. 103(a) over U.S. Patent 6,569,983 and U.S. Patent 5,977,286 in view of U.S. Patent 4,417,048

Claims 29-31 are rejected under 35 U.S.C. 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") in view of U.S. Patent 4,417,048 ("Soula").

Applicant has cancelled claims 29-31 without prejudice rendering this rejection moot.

The Rejection of Claims 23 and 24 under 35 U.S.C. 103(a) over U.S. Patent 6,569,983 and U.S. Patent 5,977,286 in view of U.S. Patent 5,779,405

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") in view of U.S. Patent 5,779,405 ("Bruhnke").

Applicant has cancelled claims 23 and 24 without prejudice rendering this rejection moot.

The Rejection of Claim 18 under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 and U.S. Patent 5,977,286

Claim 18 is rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten").

Applicant respectfully traverses this rejection.

As discussed above, Applicant respectfully asserts that treating subterranean formations as described by Treybig and the coating and adhesive applications disclosed by Marten are fundamentally different. Therefore, Applicant respectfully asserts that it follows that any disclosure regarding treating agents in one application cannot be extended to the other application and therefore there is no art recognized equivalence of diglycidyl ethers of polyhydric phenols as disclosed by Marten and aliphatic diglycidyl ethers as disclosed by Treybig as asserted by the Examiner. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 18 under 35 U.S.C. § 103(a) over Treybig and Marten.

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The Rejection of Claim 32 under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 and U.S. Patent 5,977,286 or U.S. Patent 6,569,983 and U.S. Patent 5,977,286 in view of U.S. Patent 4,417,048

Claim 32 is rejected under 35 U.S.C. § 103(a) over U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") or U.S. Patent 6,569,983 ("Treybig") and U.S. Patent 5,977,286 ("Marten") in view of U.S. Patent 4,417,048 ("Soula").

Applicant has cancelled claim 32 without prejudice rendering the rejection moot.

The Rejection of Claims 23 and 24 under 35 U.S.C. § 103(a) over U.S. Patent 4,396,499 in view of U.S. Patent 5,779,405

Claims 23 and 24 are rejected under 35 U.S.C. § 103(a) over U.S. Patent 4,396,499 ("McCoy") in view of U.S. Patent 5,779,405 ("Bruhnke").

Applicant has cancelled claims 23 and 24 without prejudice rendering this rejection moot.

The Nonstatutory Obviousness-Type Double Patenting Rejection

Claims 1, 4, 5, 6 and 7 are rejected on the ground of nonstatutory obviousness-type double patenting over claims 13, 2, 3 and 4 of U.S. Patent 6,569,983 ("Treybig") in view of U.S. Patent 5,977,286 ("Marten").

Applicant respectfully traverses this rejection.

As discussed above, Applicant respectfully asserts that Treybig discloses a method of treating subterranean formations using a different treating agent and Marten discloses a fundamentally different application such that neither reference, alone or in combination, teaches or suggests the equivalence of the aliphatic diepoxides used to prepare the polyhydroxyetheramines of Treybig and the diglycidyl ethers of polyhydric phenols used to prepare the polyhydroxyetheramines in the claimed method. Accordingly, Applicant respectfully requests withdrawal of the nonstatutory obviousness-type double patenting rejection of claims 1, 4, 5, 6 and 7 over claims 13, 2, 3 and 4 of Treybig in view of Marten.

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**CONCLUSION**

In view of the foregoing amendment and remarks, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. §§ 102(b) and 103(a) and the obviousness-type double patenting rejection and respectfully asserts that this application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully Submitted,



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